EDITORIAL NOTES.

Two or three practitioners have written asking if we could arrange for examinations of morbid specimens, tumours, blood, milk, &c., by a trustworthy specialist, thoroughly conversant with microscopical and bacteriological investigation. We thought at first this was rather "a tall order" but we have succeeded in finding the man, and he has offered to undertake the work at a nominal charge of 5s. for each report.

The importance of this we cannot over-estimate. With such diseases as Anthrax, Tuberculosis and Actinomycosis, an examination of blood, milk, and tissues is often our only hope of a positive diagnosis. The nature also of some tumours, many skin diseases, and some affections of the urinary organs can only be determined by the microscope. This sort of investigation has hitherto been lost to our profession. It is the work of a specialist, and no practitioner can hope to perform it himself even if the time and apparatus were at his command. Next week we shall publish short directions as to the best means of securing and forwarding specimens, meantime any object may be sent to us at 20, Fulham Road, with a letter of advice and remittance of 5s. Answers will be published in our columns, and urgent cases will be replied to direct by wire or post.

We would draw special attention to the report of the Royal Counties Veterinary Society. Sir Henry Simpson there refers to the proposed Horse-Tax and its relation to veterinary surgeons. At present the Bill gives doctors exemption for one horse, and Sir Frederick FitzWygram, M.P. will move an amendment in Parliament to place us on the same level. It is expedient that every member of the profession should at once use all his influence to obtain from his parliamentary representative a promise to support Sir Frederick. If a personal interview cannot be obtained a letter will probably effect the purpose. *Vis unita fortior* is our motto, let it now be our practice. There is no time to lose.

The International Congress for the consideration of Tuberculosis commenced its sittings in Paris, on July 26th. It is composed of members of the medical and veterinary professions, and will discuss the question from a pathological and sanitary point of view. Tuberculosis is rapidly assuming a prominent position in relation to public health, and it is worthy of note that the French Government have added it to the schedule of diseases in their Contagious Diseases (Animals) Act. Let us hope our Government will soon do the same. In another column we give a *precis* of the report of the Departmental Committee which quite recently took evidence in London on pleuro-pneumonia and tuberculosis.

A Quarterly Meeting of Council of the Royal College of Veterinary Surgeons was held on July 26th, at Red Lion Square. The report is not yet to hand, but we hear the proceedings were lively.

CLINICAL NOTES.

"Careful observation makes a skilful practitioner but his skill dies with him. By recording his observations he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of Pathological Science."

OSTEO-POROSIS IN CEYLON HORSES.

By William A. Dellagana, M.R.C.V.S.

I have given special attention to and collected notes on this apparently indigenous disease, so rarely met with elsewhere.

If asked for a definition, I would be inclined to give the following:—It is an abnormal action in the formation of bone in which there is an increased production of medullary matter, and dilatation of the bone canals. The canals in the bone become engorged with a semi-gelatinous material, thus dilated, and hence the enlargements.

Most of my cases have been in horses from 4 to 7 years of age, and generally in males. I have however seen it in females, a fact which has not been recorded before, as it has always been thought to be a disease peculiar to males only. As regards symptoms and diagnosis, the first thing we notice is a general stiffness. The animal has not its usual freedom of movement; this stiffness increases and then he begins to refuse his food, or in some cases to quid it. Later, swellings show about the head, facial region, and lower jaw, those on the face being most prominent.

The horse then becomes stiff, there is inability to flex the joints, and at last he falls to the ground and dies from exhaustion, consequent on his efforts to raise himself. He is utterly unable to do so, as some of the muscles have broken away from their attachments, the bone having become softened.

The progress of this malady shows remarkable variation. I find that in some cases the horse will die within a month or so: in others, it will progress, and then suddenly seem to stop, the animal apparently recovering its usual health, the enlargements only remaining. This may last for months, and the horse will, in the meantime, be good for work, I believe, however, an ultimately fatal relapse to be inevitable.

I have seen cases which, I was told, had existed for one or two years; if correct, this would be most interesting, as it shows that there is something which influences the disease. Is it climate? Is it food and water supply? I may add that most of my cases occurred between October and February, during the N.E. monsoon. There is an idea that it only occurs in young animals during dentition. I will here give my notes on the case of Headsman, it speaks for itself:—

29th February, 1888:—Chestnut Australian gelding aged 9 years, has shown signs of debility for the last few months, sent to me to be "got into condition" for sale. Upon making an examination I found him lame of all four legs, great stiffness, no swelling of joints, joints rather cold to the touch, enlargements on sub-maxilla, and rami of inferior maxilla; unable to take hard food, pulse normal, temperature 101½°F,

appetite fair. Diagnosis:—Osteo-porosis. He was very weak and could hardly stand. I had him put into the slings. From this he got gradually worse, and next day was let down on to the straw.

30th February.—Temperature 102½°F, pulse 70, no appetite. He struggled a great deal, and eventually died from exhaustion.

So far, I am of opinion that it is a disease of nutrition, in many cases caused by a sudden change. This is well exemplified in the case of Australians brought here. As a general rule, they are grass feeders, summer and winter. They are taken straight from pasture, put on board ship and subjected to a grain diet, to say nothing of the other unfavorable conditions of ship life. They arrive here in low condition, and, in order to fit them for sale, are immediately given an excess of grain to get them into what is called good condition. The result shows itself in cases in which there is a predisposition in more or less time, the duration of which depends on the age of the horse and other conditions. There seems to be some reason to suspect that one of these predispositions is of an hereditary nature, as I have found horses of a particular strain to be victims to it in somewhat unusual numbers; but there are scarcely as yet sufficient data to speak on this subject with any degree of confidence. That Indian horses are not exempt is shown by a case which came under my notice in a small Indian pony, such as is used by grass-cutters. When I saw it, it was in the last stages, its owner having been told it was a sufferer from rheumatism.

With regard to my supposition that horses may be hereditarily predisposed, I lately had a case up-country which may lead to some advance in this question. I was asked to see a mare which had recently foaled. She was said to have shown the first symptoms immediately after foaling, the foal being abnormally large and apparently healthy. Although when called in the mare seemed to have arrived at almost the end, she immediately improved on the removal of the foal, but, although some time has elapsed, she is not yet fit for work. It will be most interesting to watch whether the foal will hereafter develop any symptoms.

In this case the mare was said to be suffering from rheumatism. Before I arrived in Ceylon and recognized this disease, it was known generally, through the farriers, as rheumatism—a disease to which I cannot see the slightest resemblance. In America it is known as Big-head, and is said to be caused by feeding horses on maize.

Osteo-porosis is extremely rare in the British Islands and elsewhere, only about 12 cases having been recorded in England since 1860, when it was first recognized by Professor Varnell.

It is very curious to notice that there has been only one case recorded in India, that was by Mr. Asheton Smith, M.R.C.V.S., of Calcutta. Curiously enough, this was an Australian gelding by 'Gondolier' out of 'Touchstone'—horses which may sound familiar to some in Ceylon.

Ceylon derives its horses from the same source as India. Why is this disease not so frequent there as here? There is no doubt that the exciting causes are more prevalent here than there. Whether these have to be sought for in the nature of the food alone, or in the general climatic conditions as well, I cannot decide as yet. Indian horses get a better grass supply, and in some parts this is varied with hay; thus they do not require the large quantities of grain which it is so common to give in Ceylon, where the grass is not of the best quality.

As far as my experience goes, I have not as yet had a case which had permanently recovered. Dr. Tothill, however, tells us of a case belonging to Capt. Hayes, *said* by the latter to have done so.

What is to be done in the way of prevention and treatment? I would recommend that, on the arrival of green horses (*i.e.* grass fed), from Australia or elsewhere, they should have only a small allowance of grain at first with good grass; then, as they become acclimatized, increase the proportion of grain to the other food, so that the sudden change is avoided. As far as I know, this seems all that can be done in the way of prevention. In the way of treatment, I have not yet been successful with any drugs of the Pharmacopœia, although I have used all which suggested themselves to me. In the early stages a change of diet will probably retard its development; if accompanied by a change of climate, the result will be more favourable. When the disease is well marked, and the animal shows signs of pain and lameness, the most humane and cheapest course to pursue is to shoot it.

[The above is taken from *The Times of Ceylon*, and presents two or three points of interest. 1st That the disease is common in Ceylon. 2nd. The fact of its having been seen in a mare. 3rd. The opinion expressed as to heredity as a predisposing cause.

Osteo-porosis is rather fully treated in William's "Veterinary Medicine," but we seem to know nothing yet of its real nature. Has any *recent* microscopical work been done on this subject?]

VETERINARY MEDICAL SOCIETIES.

NATIONAL VETERINARY ASSOCIATION.

The second paper for discussion at the Newcastle Meeting was on

"INOCULATION,"

By Archibald Robinson, F.R.C.V.S.

The paper occupies 70 closely printed pages and will repay any one for reading through most carefully. In a preface the auther says "I have on the whole however endeavoured to make the paper a history of the more important facts and discoveries relative to inoculation. I think I may venture to say that, owing to the kindness of friends and strangers I have, at least on one burning question, viz., pleuro-pneumonia, collected much valuable information."

Our space will only permit a digest of the paper, and we trust this may be effected without garbling the writer's meaning. To avoid so doing, we shall as far as possible use Mr. Robinson's own words. It commences.

Mr. President and Gentlemen,

Inoculation is a term which has long been used to denote the introduction intentionally or accidentally of a virus into the organism of an animal or individual.

Many theories have been advanced to explain the mode of multiplication in the animal body of this so-called virus, and perhaps no domain of medicine has received during the present century more attention or been the subject of so many scientific investigations. The result of which may be said to have cleared the air of vague theories and irrelevant hypotheses, and to have laid upon a firm foundation the basis for a more rational comprehension of the biological phenomena which surround us, and which prior to 1860 were wrapped in mystery.

During these recent years, since the isolation of the figured elements—the only active agents of the virus—the word inoculation has acquired a more extended meaning, and is frequently applied to the introduction of these elements into inanimate nutritive media, capable of sustaining the life and reproductive powers of the minute organisms, which have been discovered in most, and will there is little doubt yet be found in all, communicable diseases.

This is followed by an historical reference to the early use of inoculation of small-pox by the Arabs, and to the introduction of the custom into England by Lady Mary Wortley Montague. Under a mistaken idea that the outbreak of cattle plague, which occurred in England in 1746, was of a variolous nature, inoculation was practised to mitigate the severity of the disease, and some evidence is given of its success. Commenting on a quotation from Dr. Aitken that "The practice of inoculation from sheep to sheep was practised in England by Professor Simonds during the recent outbreak with beneficial effects." Mr. Robinson says, "These inoculations being inoculations of the actual unmodified virus of the disease, may be objected to as producing in the individuals inoculated fresh centres of infection, and while ovination is not perhaps to be entirely condemned, it should only be carried out where the sheep so inoculated can be subjected to segregation and otherwise treated as an infected stock."

The subject of vaccination is next touched upon, and whilst Jenner is credited with having brought the operation of vaccination into application at the end of last century, it is shown that a Mr. Jesty, in 1774 had vaccinated successfully his wife and two sons.

This naturally leads to a consideration of the variolous affections of different animals, and details are given of the numerous experiments and observations made to determine their relationship. Mr. Robinson sums these up thus:—"Of all the variolous affections the closest relation exists between horse-pox and cow-pox. So close indeed that they may be identical. The variola of all the other domesticated animals and that of man is in each animal a disease *sui generis*.

The term variola may be looked upon as a generic one, equally applicable to the small-pox of the human subject, the cow, and the sheep; but, that small-pox, sheep-pox, and cow-pox are distinct species, just as the greyhound and scotch terrier are dogs, but of different breed; and one might with as much confidence anticipate finding the offspring of the greyhound resulting in the scotch terrier, as the development of small-pox into cow-pox."

Many pages are next devoted to the subject of "Inoculation, as affected by the researches of M. Pasteur."

"Much as the subject of inoculation" says the essayist, "had occupied the attention of the medical world, and accurate as were many of the hypotheses regarding it, nothing was positively known of the active agents and the phenomena resulting from their presence, which determined the fever and other morbid processes consequent on their introduction into the system, until the publication of some of Pasteur's earlier experiments.

From a very early date two natural phenomena, fermentation and fever, were looked upon by medical men as being closely allied, and time has proved that no prophecy has been more accurate than that of the English physician Boyle, when he intimated, that whoever should be capable of thoroughly explaining the nature of the fermentations, would be most likely to give a proper explanation of the different morbid phenomena of the fevers and of some of the other diseases, which would probably never be properly understood without a profound knowledge of the theory of the fermentations. It will, therefore, be interesting to scan the work of M. Pasteur which is fulfilling this prophecy."

A history is then given of Pasteur's labours which resulted in the elucidation of the processes of fermentation and putrefaction. The theory previously held was that the changes were purely chemical; Pasteur proved that they were due to the presence of living organisms.

Pasteur showed that the butyric ferment not only lives without air, but that air is fatal to its life. He afterward divided the microscopic ferments into two classes. Those requiring for their maintenance free oxygen he called *ærobies*, and those capable of living without free oxygen *anærobies*. He further showed that not only did the butyric ferment live without air, but also that air was fatal to it. He had now established that the processes of fermentation were constituted by the destruction of pre-existing compounds, and the formation of new ones caused by the introduction and multiplication of minute organisms.

M. Pasteur also showed that putrefaction was due to the presence of vibrios of precisely the same order as the vibrio of the butyric fermentation, and that it might well be regarded as a fermentation to which the name putrefaction was so applicable on account of the putrid odours to which the decomposition of fibrine, albumen, blood gelatine, and the substances of tendons, &c., and the sulphur and phosphorous which enter into their composition, gives rise by liberating the disagreeable smelling gases of sulphur and phosphorous.

In 1858 Pouchet had announced to the Academy of Sciences that he had positively demonstrated the existence of microscopic living organisms, which had come into the world without germs, and consequently without parents similar to themselves. All M. Pasteur's previous work had led him to a different

conclusion, and to expose its fallacy he found himself drawn into the debate on spontaneous generation.

In 1864 Pasteur demonstrated, in a lecture at the Sorbonne, the weak points in Pouchet's experiments, and practically established the doctrine that all living organisms are the result of pre-existing organisms.

About this time M. Pasteur's work, the fruits of which had hitherto been more directly applied to manufactures, began apparently to influence the thoughts of the medical world, and at the beginning of the year 1864 there appeared in the second number of the *Berliner Klinische Wochenschrift*, a clinical lesson by Dr. Traube in which he says—

"The vesical mucus has long been looked upon as the active agent in the production of the alkaline decomposition of urine. It was believed that as the result of retention, and distension by the fluid, the bladder became irritated and produced a great quantity of mucus, and the mucus was looked upon as the ferment which brought about the decomposition of the urea, in virtue of an inherent chemical force. This (Liebig's) opinion cannot stand in presence of M. Pasteur's researches. This investigator has demonstrated in the most decisive manner that alkaline fermentation, like alcoholic, and acetic, is produced by living creatures whose pre-existence in the fermentable liquid is the *sine quâ non* of the process. Notwithstanding the long retention of urine, alkaline fermentation has never been produced by an exaggerated secretion of mucus or pus from the bladder; it is never developed until the germs of vibrios are carried into the bladder from without."

In the following year 1865, Prof. Lister commenced his celebrated antiseptic treatment, and nine years after in a letter to M. Pasteur he concludes with the following sentence. "Allow me to take this opportunity of sending you my most cordial thanks, for having by your brilliant researches demonstrated to me the truth of the germ theory of putrefaction, thus giving me the only principle which could lead to a happy end in the antiseptic system."

Pasteur's next work threw a new light on contagious diseases, and while it was in connection with animals comparatively low in organisation, their easy manipulation and the facility with which they lend themselves to microscopic examination, was calculated to elucidate questions connected with the different modes of spontaneous inoculation, or in other words the etiology of the contagious diseases.

This was in 1865, when Pasteur went to Alais to investigate the silk-worm plague. He found it to be due to an organism affecting the worm, and showed how it was communicated by inoculation and injestion. He solved the problem and pointed out the radical measures to obtain healthy worms, and the hygienic measures necessary to maintain their health.

His next work was on anthrax a disease, in which many years previously, "thread-like bodies" had been found in the blood. These, Davaine called bacteridie and believed to be the cause of the disease but other experimentalists opposed this view, and concluded that anthrax did not depend upon a micro-organism.

In 1876 Koch of Berlin published a memoir in which he described the life of the bacillus anthraxis.

In 1877 M. Paul Bert announced that it was possible to destroy the bacillus anthraxi in blood, to inoculate what remained, and to reproduce the disease and death without the bacteridies reappearing. He assumed that the bacteridies then are neither the cause nor effect of anthrax. Says Mr. Robinson,—"This note of the celebrated physician Paul Bert that so decidedly struck at the edifice, which he had raised in the world of the "infinitely little," decided Pasteur that he must no longer stand by and see his work of over thirty years assailed, without having the means of refuting the allegations which he foresaw were calculated, if not overturned, to retard all progress.

He accordingly commenced a study of the disease which resulted in the exposure of Dr. Bert's error, the establishment of a principle for the attenuation of viruses, the confirmation in disease of the principles he had enunciated for the fermentations, and which had been to a certain extent corroborated in the silk-worm disease.

The next section of his essay is devoted to a very full account of the work done by Pasteur and others on anthrax, rabies, fowl cholera, &c. Details are given of various experiments on the inoculation of living animals and organic solutions with the active principles of contagious diseases. The steps taken to cultivate specific disease-producing organisms in suitable media are minutely described, as are also the methods adopted to attenuate the virulence of the cultivated viruses. With these attenuated and carefully cultivated poisons, animals are inoculated but do not suffer from the dangerous disturbance induced by the original infection. They obtain, however, the same immunity from a second attack that is found to result from a first attack of any specific disease. Thus these cultivations afford a valuable preventive inoculation, which by conferring immunity against disease are likely to become our strongest weapon in preventing its spread. How this immunity is brought about is not yet a settled point. M. Pasteur supports the theory that in the first attack the microbe exhausts the organism of the elements necessary for its existence. M. Chauveau however asserts that it is only possible to explain the immunity acquired, by the presence of a residual matter—of a ptomaine or soluble poison—impregnating the organic element. This is left by the first invaders and affords an almost insurmountable obstacle to the development of a further similar bacterial invasion.

INOCULATION IN PLEURO-PNEUMONIA.

After referring to Dr. Williams of Belgium as the first to attempt protective inoculation for pleuro-pneumonia, to Priestman of London as having extensively practised it, and to Mr. Rutherford of Edinburgh, by whom "it was perfected and revived on on his return from India." Mr. Robinson adduces the evidence of colonial observers—

Mr. Graham Mitchell having arrived in Australia in 1854, prior to which the country had been free from contagious diseases, has had favourable opportunities of observing their introduction and spread.

In a paper read before the Melbourne Social Science Congress in 1880, he says that pleuro-pneumonia was introduced into Victoria by the late Mr. Boadle's

heifer, St. Bees, and was first definitely diagnosed by Mr. Henry Wragge, M.R.C.V.S., who in his report said, "I would recommend as the best course, that the whole of the herd should be destroyed," being convinced that remedial measures would be of no avail, and that stamping out was the only chance of preventing the disease spreading. He further stated that it was his opinion that the disease was both contagious and infectious, and Mr. Mitchell adds, "that more positive proof could not be adduced than the way in which it spread on Mr. Boadle's farm."

A Mr. Alexander Brock, who in a trip to Britain had attended a course of lectures at the Dick College, on learning the nature of the disease, at once called a meeting of stock owners, by whom it was decided that Mr. Boadle's cattle should be destroyed and sufficient funds raised to compensate him for the loss sustained. Mr. Boadle offered every facility and was commended for the promptness he displayed in sacrificing his fine herd, with whose destruction it was hoped the disease would be eradicated. These hopes however were not realized, for Mr. Hooper's (a neighbour) herd had contracted the disease.

At the time Mr. Hooper's cattle were destroyed, Mr. Graham Mitchell, who was impressed with the pamphlet published by Dr. Willems in 1852, obtained a quantity of virus from the lungs of the diseased cattle, and commenced a series of experiments by inoculating healthy cattle and then placing them alongside of diseased ones. It was Mr. Graham Mitchell who observed in these experiments, and first pointed out, that "pleuro-pneumonia virus had a recognisable specific action, and had the power of reproducing itself in repeated inoculations, or what I termed in contra-distinction, vaccination."

"With the virus obtained from healthy inoculated animals I vaccinated a valuable herd with the most satisfactory results, not a single animal showing any of the untoward results often met with in primary inoculations, and none of which contracted the disease although prevalent in the neighbourhood. I communicated the results of my experiments to Dr. Willems, who complimented me upon the new light I had thrown upon his discovery by proving that the virus had a specific action, and that the mortality from inoculation could be reduced to a minimum by either using the first remove (vaccinating) or by subjecting the virus to a process which frees it from decomposing tissues and other solid material, leaving a pure amber-coloured liquid, which may be kept for an indefinite period in hermetically sealed tubes." (?)

Mr. Alexander Bruce, Chief Inspector of Stock, New South Wales, says: "From Holland the knowledge of inoculation was carried to the Cape of Good Hope, where its practice in a great measure stopped the ravages of the disease, which before inoculation was tried was carrying off the stock there in some instances at the rate of 70 or 80 per cent. In December 1861, a letter from Mr. Cloets, of Zandoliet, Cape Town, was published in the Sydney and Melbourne papers, describing inoculation and advising its practice. Upon this information Mr. Thomas Mitchell, Little River, Victoria, acted, and was the first to commence the practice in Australia. Shortly afterwards, about the 12th of January, 1862, the Messrs McLaurin of Yarra-Yarra, New South Wales, tried the experiment, and the success of these gentlemen spedily induced other stock-owners in both Colonies to follow their example, till inoculation as a preventive against the spread of pleuro-pneumonia in cattle has been practised with decided success in almost every Portion of New South Wales and Victoria as well as in Queensland and South Australia. There are now innumerable instances where inoculated cattle have for a period of upwards of five years frequently mixed and been in contact with infected animals with almost complete immunity from the disease, while uninoculated cattle were dying on the same ground in considerable numbers; and there are also numberless cases where, although a considerable number of cattle were dying in the herd when the operation was performed, the disease disappeared shortly afterwards, and the cattle have since continued to be healthy and free from pleuro-pneumonia."

In this exhaustive report, which treats of the nature, cause, symptoms, diagnosis, preventive and remedial treatment, and other matters in connection with the disease, Mr. Bruce says, "Although there is thus evidence in favour of inoculation for pleuro-pneumonia, it is not so thoroughly conclusive as to form the basis for legislation, not because the operation when properly performed on sound cattle fails to prove a preventive, but because sufficient evidence of the proper class has not been gathered."

Since 1868 Mr. Bruce has had sufficient evidence to be decided in his opinion of the favourable results likely to accrue from compulsory inoculation, for from recent information it seems that he anticipates the introduction of compulsory inoculation, and as a result the extinction of the disease. He says "In regard to Australia there is the incontrovertible fact that millions of cattle have been successfully inoculated during the last 26 years, and that our stock breeders who own among them more than eight millions of cattle and who have during that time been constantly putting inoculation to the test are almost to a man in favour of the treatment."

"Pleuro-pneumonia was eradicated in New Zealand by inoculation in 1863. It was introduced into that colony from Australia in 1860 and a law was passed making it compulsory on owners to destroy their infected cattle or to inoculate them. They almost without exception inoculated, and stamped out the disease, and there has not since that time been a single outbreak of pleuro-pneumonia in the whole of New Zealand."

Mr. P. R. Gordon, Chief Inspector of Stock, Queensland, in a letter to Mr. Robinson, says, "The disease first entered Queensland in 1863, since when it has been constantly present, more or less, in the Colony.

On its first introduction (like all diseases in stock when first introduced to a new habitat) the mortality was very great; but of late years it has become so to speak acclimatised, and if the cattle are not disturbed on the Runs the losses from it are very trivial.

On the question of inoculation I am safe in asserting that 98 per cent. of the cattle-owners of this Colony believe in it (and there are over four and a half millions of cattle in Queensland) but it has not as a general rule had a fair trial, as in a majority of

cases it has not been resorted to until the disease has actually entered the herd, or until one of the adjoining herds has become affected, by which time it is more than probable that a large percentage of the herd is suffering from the disease in its incipient stages.

I have perhaps had better opportunities of judging the effects of inoculation than any of the Chief Inspectors of the other Colonies, from the fact that we have in this Colony an Act which provides for the registration of brands and ear-marks on cattle. Under that Act I have reserved a special ear-mark to distinguish inoculated cattle, and the reports of the various cattle-owners are to the effect that few deaths occur among the cattle so marked, and so well is this fact known that buyers of store cattle in the Southern Colonies readily give 15 per cent. more for Queensland store cattle bearing the inoculation ear-mark than for those who do not.

The mark has thus acquired a commercial value. With the herds mixing together from one end of the Colony to another and with many wild cattle running in our scrubs it would be utterly useless to attempt to stamp out pleuro-pneumonia by means of the pole-axe. The cattle-owners are therefore restricted to the practice of inoculation as the only means of alleviating their losses from the disease; but until some means shall have been discovered for preserving the virus so that the cattle can be inoculated as calves at time of branding, we do not expect to stamp out the disease by that means.

So far all attempts at preserving virus by desiccation and otherwise have proved abortive here."

While our friends in the Colonies are evidently thoroughly satisfied with inoculation and its results, on the continent of Europe and at home, as recent legislation testifies, the satisfaction is not so universal.

Let us first turn our attention to our continental friends. From France, and more particularly the department of the Seine, the most unsatisfactory particulars may be gathered, as may be seen from the gradual increase paid in compensation during the following years.

	Department of the Seine.	Compensation paid.
1882	about	£ 866
1883	,,	1695
1884	,,	1960
1885	,,	4852
1886	more than	8000

M. Leblanc, who gives these statistics in a discussion in the *Société Centrale de Médecine Vétérinaire*, 27th April, 1887, while convinced of the benefit to be derived from the inoculation of animals as a preventive, that is to say, before putting them into a contaminated stable, or inoculation in stables in the vicinity of affected one, but not yet themselves infected, is opposed to it in affected stables where he would slaughter all the animals.

Turning from this apparently most damaging report of the prophylactic effects of inoculation, let us for a moment examine the grounds on which the opponents of inoculation cite the case of Holland.

Those who are opposed to inoculation generally, while citing the action of Holland in introducing compulsory slaughter, lead their hearers to infer that inoculation was abolished in that country, and that on account of its failure, compulsory slaughter required to be had recourse to.

Such however is not the case, the law of 1879 which renders inoculation compulsory is not abolished.

Of the various processes employed in the operation it appears that the hypodermic injection and the process employed by Mr. Rutherford of saturating woollen threads in the fresh lymph and employing them as setons, are the methods which yield the most satisfactory results. And as M. Cagny observes, the difference in the mortality resulting from the different procedures in France and Scotland is the best explanation of the difference between the protection secured in the different countries.

In France where the protection afforded is far from encouraging, the per-centage of deaths from the operation, as pointed out by M. Leblanc, is from 2 to 3 per 1000. In Holland and Scotland where the protection afforded, when the operation is properly performed, appears to be absolute, the per-centage is from 1 to 1½. The two most essential points for the operation to be attended with success evidently are: 1st, the careful collection of the clear amber-coloured lymph; 2nd, its introduction into the system; the latter of which is attained with more certainty either by hypodermic or intravenous injection, or setoning, than by inoculation with the lancet.

It appears to me that anyone who has been privileged to see inoculation for pleuro-pneumonia put into practical operation, and who has carefully read the experiments performed, and reported on, by the appointed commissioners on the continent, and the testimony of the Australian stock-owners, cannot but be convinced of the benefit to be derived from its compulsory application, coupled of course with the slaughter of the diseased and suspected animals. The result of Mr. Rutherford's work alone in this country one would imagine should be sufficiently demonstrative to even the most incredulous.

It may be considered presumptive to offer suggestions as to the measures that ought to be adopted for the suppression of pleuro-pneumonia, but there can be nothing plainer than that the compulsory slaughter of healthy animals in contact, is a measure most unfair to the large dairy proprietors, when the same result can be arrived at by inoculation, at a figure much inferior to that which it will cost the country for the wholesale slaughter of valuable herds. The country could be rid of pleuro-pneumonia, in my opinion and in that of others, without entailing on all concerned the losses consequent on such wholesale slaughtering.

Some statistical tables are given showing the number of animals inoculated by Mr. Rutherford and the number of places in which it was practised. These tables cover eleven years and show, says Mr. Rutherford in his letter to the essayist "The controlling effect of inoculation, and how easy it would be—by making it uniformly compulsory—in the event of an outbreak, to cut down the disease and

in time annihilate it, always provided the operation be vigorously carried out in each instance. To my mind there is no difficulty about it; all that is required being its compulsory performance under a carefully prepared system, to ensure its being carried out properly.

You will ask what is the mortality. Well, at first my average was 5 per cent., then it soon fell to 3 per cent., and gradually lower and lower till now it averages 1 per cent."

With one more extract from the paper we conclude what is undoubtedly a very mutilated resumé. The original complete essay may be obtained by joining the National Veterinary Association.

EXPERIMENTAL INOCULATION.

When one reflects on the enormous strides which have been made in pathology since the discovery of the bacillus tuberculosis, with the aid of the colouring process by Koch in 1882, it would seem to be almost unnecessary to touch on the advantages which have been and are still to be derived from experimental inoculation. And it is almost incredible that in our country, which ought certainly not to be in the rear in matters of this kind, a foolish sentimentality should have influenced Government, that by the continuance of the Vivisection Act in its present form, all stimulus to honest pathological work should be retarded, by being limited to the few whose influence can secure them a license.

THE DISCUSSION.

Professor PENBERTHY opened the discussion on the paper. On the ground of the extent of the subject, and the magnitude of the paper, he would ask them to pardon him if he was not so clear as he would like to be. Great energy and perseverance were noticeable in Mr. Robinson's paper. He did not think there was a remark in the paper which might be considered irrelevant, although there were some which might be considered excessive. The importance of inoculation could not be exaggerated, for in inoculation he saw means of lessening disease. From protective inoculation, he thought they had reasonable ground for hoping for good results. In the disease of anthrax they had positively shown by experimental inoculation that they could ordinarily produce immunity from danger. There was, it seemed to him, some difference of opinion, as regarded the mode in which that immunity from disease was to be brought about. He thought the writer of the paper had used terms too strong as regarded inoculation for rabies. He (the speaker) did not think they were in a position as yet to arrive at any very positive conclusion. or, at any rate, an inclusive conclusion. Regarding inoculation for anthrax he must say, that so far as he had been able to carry out experiments on a rather limited scale, they confirmed *in toto* that which Pasteur had said about protective inoculation. There was vaccine to protect against anthrax which would keep for three months, and which might be used by any ordinary practitioner with perfect safety. He had never inoculated an animal with Pasteur's vaccine where the animal had been at all in danger from the vaccine, or when tested with virulent matter had shown any signs of disease. In inoculation as protective against Pleuro-Pneumonia, they had an extremely difficult matter with which to deal. They had in Pleuro-Pneumonia a disease which experiment, so far as he could gather, had never been able to reproduce in its original character, and this of course rendered proof of protection very difficult. Professor Penberthy next alluded to the evidence which had been arranged by Mr. Robinson from Mr. Bruce, of New South Wales, and Mr. Gordon, of Queensland, neither of whom, he thought, was a veterinary surgeon or a scientific man, and next pointed out that the essayist seemed to have disposed of the evidence of M. Leblanc in a rather peculiar manner. M. Leblanc possessed an enviable reputation as a general practitioner, and yet the remarks made by him derogatory to protective inoculation for pleuro-pneumonia seemed to have been treated lightly by Mr. Robinson, who had given too great weight to the generalities of Mr. Gordon and Mr. Bruce. If that which appeared in the evidence of Mr. Gordon, who was chief Inspector of Stock for Queensland, were true, then pleuro-pneumonia, in that country was different from what it was in England, so it might be considered they were dealing with a different disease, and therefore Mr. Gordon's evidence on this point was worthless. In conclusion, the Professor referred to the evidence given by the Highland and Agricultural Society's Committee, in which he thought they had the most damaging affirmations by the exponents of inoculation for pleuro-pneumonia, but as his time had expired, he could not go into them. He thanked them for their patient hearing. (Applause.)

Mr. CLEMENT STEPHENSON thought it would be better if, instead of going critically into Mr. Robinson's paper, he endeavoured to get a common-sense view of pleuro-pneumonia as it affected this country. He questioned very much the value of the information that Mr. Robinson in his travels had obtained In fact, he thought he could have got more trustworthy information at home. He could not see that the statistics he had given them from the colonies, and from Mr. Rutherford carried much weight with them. There was nothing in those statistics about cost; and cost, he would beg them to remember, was a very important subject indeed. Inoculation was advocated in the colonies, but he had talked with colonials lately, and they frankly admitted that if they could stamp out pleuro-pneumonia they would do so, but they could not. For twenty-five years they had been inoculating, and they still had, and were likely to have, the disease. He commenced stamping out in Northumberland in 1878, and the cost reached the twentieth-part of a penny in the pound on the rates. The whole question was one entirely of pounds, shillings and pence. Some statistics had been given from Holland, but they did not quite correspond with the statistics as given in the Privy Council Department. It was only by stamping out that Holland got rid of the disease. In Denmark, Sweden, and Norway the disease had always been eradicated by stamping out and not by inoculation. In his opinion inoculation for pleuro-pneumonia did not stamp out disease; it perpetuated it. Neither had he any hesitation in saying that the only persons who got any

good from inoculation were those who performed the operation. (Hear, hear, and Laughter.)

Professor WALLEY agreed with Professor Penberthy in his remarks anent the amount of labour Mr. Robinson had bestowed on his paper. It was true there was matter therein which did not bear much on the subject for discussion, but the introduction of irrelevant matter in a paper like Mr. Robinson's was unavoidable. Mr. Robinson said in his paper that, "animals inoculated with vaccine lymph in no case communicated disease to those animals in contact with them, just as vaccinated persons never infected unvaccinated persons with whom they live." Now, during an outbreak of small-pox in Manchester, certain members of his family got vaccinated, but he was not vaccinated himself, and yet he developed a pock. (Much laughter.) Proceeding, he thought the temperature of byres had a great deal to do with mortality in connection with inoculation. If people would not keep their byres at a proper temperature heavy losses would ensue, but not otherwise. The most important thing in the whole question was whether or not they were justified in going on with inoculation, or whether they should not adopt a better system of getting rid of the disease. If inoculation were to do any good it should be applied in its proper place, and all cows which had been within a limited area of the disease should be operated upon. During the past 30 years no progress had been made in the direction of getting rid of the disease.

Dr. FLEMING considered the subject of inoculation one of importance, now that they were able to study the nature of the virus. He thought they had every reason to believe that every contagious malady was due to a specific germ. Over and over again it had been demonstrated that anthrax was due to a specific germ. It was not his intention to enter into the merits or demerits of inoculation, but he thought the French Commission had shown in the most conclusive manner that inoculation with the virus of pleuro-pneumonia was a protection against that malady, and the members of that commission were neither fools nor knaves. The experiments were absolutely conclusive as to the value of inoculation as protection against pleuro-pneumonia. In addition to the evidence of the French Commision they had also the testimony of a large number of the members of their own profession in this country to the same effect. Of course great factors in the protective value of inoculation were the time it should be performed and how it was performed. Most of the failures in the operation, he thought were due, to a great extent, to the neglect of principles, which should guide operators in their work. The object of inoculation was to protect from disease. It was all very well to say "resort to slaughter." In a country like Australia where whole herds of cattle were affected, that was like making a desert, and calling it peace. They could not stamp out whole mobs of cattle; therefore, people had recourse to inoculation. In a country like England, where disease existed but in a limited area, he said stamp it out, and yet stamping out was a reflection on their own scientific ability. If they could prevent animals taking the disease by inoculation, they ought to do so. When protection was difficult, and mistakes were liable to be made, then perhaps the brutal method of stamping out should be resorted to. It struck him that a disease which depended upon a specific virus ought to be stamped out. (Applause.)

Mr. R. RUTHERFORD's views concerning the question of inoculation were so well-known that to go through them, he thought would be useless. Alluding to the remarks of a previous speaker concerning Mr. Robinson's two Australian correspondents on the question of pleuro-pneumonia, he pointed out the responsible positions which those gentlemen filled, and asked if it could be supposed for one moment that they had no veterinary advisers to assist them, or that they had assumed all the authority of writing their valuable reports without the knowledge and sanction of the veterinary advisers of the government? (Applause.) He ventured to assert that such was not the case. In Australia, through inoculation, they had reduced the terrors of pleuro-pneumonia to no terror at all. Now they did not care a snap of the fingers in the colonies for the disease, and, in fact, paid more for herds which had been through places where the disease had prevailed, and more for stations which had been infected than for those which had remained free—so much was inoculation valued in that country. Then, again, in Edinburgh time was when the disease was to be found in most of the byres, but, thanks to inoculation, the dairymen now cared as little about the disease as in Australia. The cost attendant upon inoculation had really been a saving. (Applause.) He did not mean to say that the operation was perfected, but the profession was but doing its duty in endeavouring to perfect it. (Applause.)

Professor MCFADYEN pointed out that Mr. Rutherford had carefully avoided coming to close quarters with Mr. Stephenson on the question of pounds, shillings, and pence. Personally, he (Professor McFadyen) would combat as strongly as he had words the statement that it was unscientific to attempt to get rid of pleuro-pneumonia by slaughter. He looked upon the method of getting rid of pleuro-pneumonia at the least cost as the proper method. (Applause.)

Mr. CUNNINGHAM having given his share of praise to Mr. Robinson for his paper, directed the attention of the meeting to the fact that the most illustrious man of science of the present day was an inoculator and not a stamper out. He thought before Professor Penberthy or Mr. Stephenson passed an opinion on Mr. Rutherford's system of inoculation they should go down and watch him, and observe how much he had been the means of saving. When they had done this they would be perfectly entitled to pass an opinion thereon, As they had not done so, their opinions must be worth nothing. He knew a district afflicted with pleuro-pneumonia where slaughtering failed to get rid of the disease. Mr. Rutherford was called in and he practically broke the back of the disease, and for the succeeding 8 years there were no fresh cases. In the preceding 8 years there had been four outbreaks. He had good reason to be an enthusiast in the matter of inoculation, when he had seen the good results therefrom. Mr. Stephenson's assertion that "no one benefitted from inoculation but those by whom it was performed," he contested, and claimed that the owners

of the cattle had benefitted most from it. Inoculation, he maintained, if properly practiced was not, as it had been described, a delusion and a snare. For the suppression and eradicaton of pleuro-pneumonia it was a good measure. (Applause.)

As the time for adjourning had passed, Mr. Robinson briefly replied, pointing out that the information he had submitted on the question of pleuro-pneumonia had been got from most reliable sources, and stating that he was by no means vexed at the criticisms which had been passed on his paper. (Applause.)

The president thought the meeting would agree with him that Mr. Robinson deserved their best thanks for his elaborate paper, which was one of the best that had ever been brought before the association. As to the operation of inoculation, he might say that, although he had never practised it himself, he had watched it for a number of years, and he must say that he was heart and soul with inoculation for the prevention of pleuro-pneumonia, notwithstanding the fact that he was once prejudiced against it (applause.) At one time the byres in Edinburgh were never free from the disease, but now they never had it. They had the disease in some parts of Scotland, but it was always imported. (Applause.) He moved a hearty vote of thanks to Mr. Robinson for his paper.

Professor PENBERTHY seconded, and the proposition was unanimously carried.

The conference then adjourned to the following day.

ROYAL COUNTIES' VETERINARY MEDICAL ASSOCIATION.

A Meeting of this Association was held at Henley-on-Thames on Friday 27th July. The attendance included Mr. F. W. Wragg, (President) who occupied the chair; Professor Pritchard, Professor Walley, Sir Henry Simpson, and Messrs. H. Kidd, (Hon. Sec.) J. P. S. Walker, (Hon. Treasurer) J. F. Simpson, E. J. Mellett, J. D. Barford, W. J. Mulvey, (London) A. C. Barlow, W. Hunting, E. C. Howard, R. Page Bull, W. Woods, H. G. Rogers, and W. A. Hunting.

The minutes of the last meeting were read, confirmed, and signed by the President.

The Hon. Secretary announced the receipt of letters of apology from several members; and said he was sorry to have to report the loss by death, since the last meeting, of three members of the Society—viz., Mr. Rostron, of the 2nd Life Guards; Mr. Harpley of London; and Mr. Hunt.

The President was sure every member deplored the death of these three gentlemen (Hear hear.)

Mr. Barford proposed that letters of condolence with the families of the gentlemen named be sent, expressing the sympathy of the Society with them in their bereavement.

Mr. Mulvey seconded the resolution, which was carried unanimously.

Mr. J. F. Simpson, in the absence of Mr. Sydney H. Slocock, proposed Mr. W. J. Hatton, M.R.C.V.S., of Richmond, Surrey, for election as a member; and the nomination having been seconded by the Hon. Secretary, Mr. Hatton was unanimously elected.

PURCHASE OF INSTRUMENTS.

The President said that the Committee appointed to draft a scheme for the purchase of instruments for the use of the members of the Association, had been called to meet before the Annual General Meeting of the Society; but as only four members attended they arranged for a further meeting that day. The train service, however, prevented them from meeting in time, so that he thought the business had better be deferred to the next meeting, when no doubt a scheme would be ready.

After some discussion, it was agreed, on the proposition of Mr. Simpson, seconded by Mr. Mulvey, to discuss the matter at the present meeting.

Sir Henry Simpson then moved "That the Committee be requested to undertake the purchase of a complete set of dental instruments, if in their opinion such a course was desirable." Those instruments would, he had no doubt, be purchased before another month was over, and they could be added to, as funds allowed.

Mr. Mellett seconded the resolution, and it was carried, as was a subsequent motion "That the President for the time being, have the care of such instruments as may be purchased," and it was left to the Committee to draft a code of rules, to be submitted to the next meeting, to regulate the lending of these instruments.

PLACE OF NEXT MEETING.

On the proposition of the President, seconded by Sir Henry Simpson, London was unanimously selected.

A most interesting and exhaustive paper was then read

ON OPHTHALMIA, by PROFESSOR WALLEY.

Mr. Simpson said the subject was one of such importance that it could hardly be fully dealt with that day. He begged therefore to propose that the discussion be postponed until their next meeting; and that Professor Walley would kindly allow his valuable paper to be printed and circulated among the members of the Association in order that they might fully acquaint themselves with its contents in the meantime. (Hear, hear).

Professor Pritchard seconded the motion.

Professor Walley expressed his readiness to allow the paper to be printed. The only objection to the course proposed was that the essayist got little chance of hearing the discussion and replying to it; and he would ask them to have notes of the discussion taken so that if he could not attend he might send a written reply to be read at the following meeting. (Hear, hear.)

Mr. Woods tendered to Professor Walley his hearty thanks for his valuable paper. He did not agree with the Professor, however, that colliery horses were more liable to go blind than others. In his younger days he had a good deal to do with inflammation of the eyes, ophthalmia in pit horses, but now he rarely saw a case. He attributed the improvement to better hygienic treatment of the ponies. In most stables where there were 20 or 30 ponies, the return air that had gone all round the colliery ultimately passed

through the stables. They were very ill-ventilated, some time ago he particularly noticed over 200 ponies that had been turned out of the pits owing to a strike, and, although some of them had been underground eleven or twelve years, he did not find one afflicted with ophthalmia. If they were brought up at night, which he always insisted upon, they were not affected at all.

Professor Walley replied that in making the statement he said that "in his experience" it had been the case that pit ponies were more likely to become blind than other horses. He had had some experience of ophthalmia in pit ponies. Some years ago Mr. Mulvey was kind enough to procure for him a truck-load of pit ponies for dissection, and out of the six or eight there was scarcely one without ophthalmia.

The resolution was carried unanimously.

THE HORSE TAX.

Sir Henry Simpson brought this subject before the meeting. As they were aware, there was a proposal to tax all horses used by professional men, as under the old Act; but there was under the latter exemption in certain cases. Veterinary surgeons, however, were not exempt. Some time ago, when the Budget Bill was contemplated, the Chancellor of the Exchequer said, "medical men" would be exempt; and he (Sir Henry) being then President of the Royal College, ventured to emphasise the fact that veterinary surgeons were medical men, and ought to be entitled to exemption. (Hear, hear.) Mr. Goschen's secretary wrote to him that the matter should have the best consideration of the Chancellor of the Exchequer. Sir Frederick FitzWygram saw the Chancellor, and he promised him that veterinary surgeons should be exempt. The Bill came out the other day, and veterinary surgeons were not included in the exemption, the definition of persons entitled to exemption in respect of one horse being "physician, surgeon, or apothecary." Sir F. FitzWygram saw the Chancellor of the Exchequer, who admitted it was true that he had said so, but stated that claims for exemption were coming in from all quarters, and that he had therefore determined to adhere to the lines of the old Act; but he added that he should not oppose a motion in the House to exempt members of the Royal College of Veterinary Surgeons in practice. The matter was not one of £1 a year; but the great thing was for them to try to get exempt, because that would ally them in status with the physician and surgeon. (Hear, hear.) Sir F. FitzWygram was anxious that Members of Parliament should be approached, in order that when he moved the amendment, as he was prepared to do, they would support him. Sir Frederick brought the matter before the Council of the Royal College yesterday; and he (Sir Henry Simpson) hoped those present would act on the hint. (Hear, hear.)

On the proposition of the President, a hearty vote of thanks was given to Professor Walley for so kindly reading a paper at this Association.

On the motion of Mr. Barford a cordial vote of thanks was given to the President for presiding.

H. KIDD, Hon. Sec.

EXTRACTS.

TUBERCULOSIS.

Report of the Departmental Committee.

NATURE OF THE DISEASE.

The Committee say "the great discovery that the tubercles or foci of the disease contained a virus or poison capable of inducing the disease when inoculated into the lower animals was first made by Klencke in 1843, but first described at length and placed on an undeniably firm basis by Villemin in 1865. The nature of the poison itself remained unknown until it was discovered by Koch in 1881 to be a rod-shaped microbe. The spores or seeds of the microbe have greater vitality than the adult rod. The temperature most favourable to the growth of the microbe is that of the ordinary heat of the animal body—from about 98.5° to 100.5° Farenheit. Growth ceases at 82°F. but the bacillus is not killed by cold. Kept at a temperature of about 107.5° F. for several weeks the organism becomes exhausted and dies.

It is abundantly evident that the infectious discharges of a tubercular remain actively virulent in this climate for a long time after they have been cast from the body, and that stalls and sheds may thus become a source of danger unless thoroughly cleansed. It appears that the organism grows most readily in omnivorous and herbivorous animals—carnivora being very rarely affected.

Certain unhealthy conditions cause a predisposition to contract the disease. Such are—Starvation, Bad ventilation, Exhausting secretions, *e.g.*, prolonged lactation, Heredity.

MODES IN WHICH THE VIRUS OR MICROBE ENTERS THE BODY.

The bacillus has been proved to enter the body and cause disease by Inhalation, Swallowing, Direct introduction through a cut or sore in the skin or mucous membrane, and possibly intra-uterine.

MODE OF ATTACK.

The disease may attack the body of an animal in two different ways. It may be introduced into the blood and distributed generally so setting up the condition known as *acute* or *general* or *miliary tuberculosis*. It may affect for a considerable time only the point of entry and the neighbouring lymphatic glands,—*local tuberculosis*.

DISTRIBUTION OF THE DISEASE WITHIN THE BODY.

This is difficult to connect with any special mode of introduction of the virus, save perhaps inhalation. In cattle the lungs and pleura and the serous membranes generally are the favorite seats of the disease. In pigs it commonly attacks the glands in the neck. In rodents the spleen, the liver, the lungs and the bones. In fowls the nose, mouth and the spleen. In horses the glands, and in man the glands, lungs, joints and the nervous system.

The distribution of the disease and the bacilli in the body closely affects the question of the use of tubercular meat as food. The marrow of the bones is affected at an early period and although rarely, the flesh may be.

The secretions from diseased organs contain the bacilli and are consequently infective in proportion

to the activity of the malady. It is obvious that the fact of milk being infected is of primary importance to the health of both animals and men.

FREQUENCY OF OCCURRENCE AMONG ANIMALS AND MEN.

It has been calculated that to this poison alone are due from 10 or 14 per cent of all deaths among human beings.

The proportion among animals has not been so clearly made out. It is much more common among milking cows than other kinds of stock and it is found that the lowest per centages occur in herds fed in the open air most of the year, the higher death rates being among dairy cattle inhabiting sheds.

The relative frequency with which the disease appears among fowls seems to be not generally known, except to Veterinary Surgeons of large cities. Both from direct experiment and from clinical observation it is now proved not only that the fowl may contract the disease from man by reason of its swallowing the expectorated bacilli but that it thereby forms a vehicle for the further transmission of the disease to man and the lower animals.

REMEDIAL MEASURES

Legislation directed to the protection of cattle from tuberculosis should at the same time include such measures as will also prevent its communication to man and must follow the two lines of Prevention and Extirpation.

PREVENTIVE MEASURES.

Should include—Improved hygiene of cattle sheds, Isolation of suspected animals, Precautions against the flesh or milk of diseased animals being given to others as food *e.g.*, to pigs, fowls, etc. Care that fodder, litter and water should not be taken from diseased to healthy animals.

Obviously diseased animals, sometimes even in the last stage of the malady, are sold in open market; we are therefore very strongly of opinion that power should be given to the Veterinary Inspector to seize all such animals in fairs, markets, or in transit.

Since all authorities are agreed that the disease is very marked by heredity, we think it highly desirable that breeders should in their own as well as in the public interest discontinue breeding from tuberculous stock.

EXTIRPATION.

In order to ensure the gradual extirpation of tuberculosis we are of opinion that it should be included in the Contagious Diseases (Animals) Acts so as to provide

1.—For the slaughter of diseased animals when found on the owners premises.
2.—For the payment of compensation for the slaughter of such animals.
3.—For the seizure and slaughter of diseased animals exposed in fairs, markets, etc., and during transit.
4.—For the seizure and slaughter of diseased foreign animals at the place of landing in this country.

Notification of this disease should not be compulsory because it may exist without developing any sufficient outward evidence to enable the owner to detect it, and its growth is so slow that non-notification of its existence, even in a large number of cases, would do little to nullify the stamping-out effect of the Act of 1878.

The owner should be compensated for the slaughter of a tuberculous animal at the rate of three-fourths of its value before it was slaughtered, and the valuer should shape his estimate according to its worth to the owner, *i.e.* as a milk-producer, or for any other special purpose.

If the animal should be one of great value, as in the case of pedigree stock, its worth might be determined by arbitration.

Professor Horsley signs a Supplementary Report in which he suggests "that wittingly breeding from tuberculous animals should be made an indictable offence," and that "the compulsory notification of the disease should be included in any legislation for tuberculosis."

NOTES AND NEWS.

Horse Shoeing Competition at the Bedfordshire Agricultural Show.

At the above show, held at Leighton Buzzard on July 18th, Horse shoeing was introduced for the first time—James Howard, Esq. handsomely supplying the needful prize money, £10—there were two classes, one for ride and drive horses with 16 competitors, the other for agricultural horses with 13 competitors. Each competitor had a fore and a hind foot shoe to make out of new iron, fit both up, and put the fore shoe on. Four fires were supplied, and work began sharp after ten o'clock; and all was completed and awards made by 3.20 p.m.

Mr. Clement Stephenson, of Newcastle, officiated as Judge, single, and before the work began he addressed the competitors, cautioning them against a too free use of the knife and rasp, also against burning the foot, and advised them to keep in mind the kind of horse they were shoeing, the nature and peculiarities of his feet, and the work the horse was expected to do: he further advised them not unnecessarily to waste time by filing and polishing the shoes—good work did not require it.

The work done was very good indeed. The feet were not unduly interfered with, the shoes were sound, and adapted to the work the horses had to do, and as hammer-men some of the competitors were professional artists—It was a perfect treat to see and hear some of the men at work. The time test was reasonable, and better than is generally found at these competitions;—it varied from 22 to 47 minutes, but 30 minutes was the average of twenty of the competitors, and only 3 of them exceeded 40 minutes.

Great general interest was taken in the work, there was always a crowd around the enclosure, and some of the visitors carefully and intelligently inspected the work done.

Mr. Stephenson expressed himself highly pleased with the work, and said that it was amongst the best he had ever seen.

The arrangements were all admirably carried out by the Stewards, Messrs. Eve, Senior and Junior.

STUDENTS' COLUMN.

A Prize of 5s. will be given for the best written answer to each of the following questions :—

Questions

1. Describe what is visible in the act of Rumination?
2. What is the time of the gestation in the mare, cow, sheep, bitch, pig and rabbit, and what is the average number of offspring at a birth?

Last Week's Questions.

Owing to the number of answers received to last week's questions we must postpone till next number the name of successful candidates.

No competitor must have been more than two sessions at College. Answers must reach us not later than Wednesday morning. The competitions are open only to veterinary pupils and students. Each answer must be signed in full with name and address. If a pupil, state who with; if a student, state at what College. We trust to men's honor not to receive any help in preparing their answers.

Late Advertisements.

TO VETERINARY SURGEONS.

WANTED by a Class C. Student (passed Oral Examination for Diploma of Royal College of Veterinary Surgeons) a situation as Assistant; has seen mixed practice. Age 24. Apply, VET., 69, Parliament Hill Road, Hampstead, London, N.W.

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CORRESPONDENCE.

Original articles and reports should be written on one side only of the paper, and authenticated by the names and addresses of the writers, not necessarily for publication.

We shall be obliged by early intelligence of all matters worth bringing under the notice of the profession, and thankful to any friends who may send us cuttings from local papers, containing facts of interest.

VETERINARY ETHICS.

Sir,

It was my misfortune recently to meet a young member of our profession, who glories in the art of horse-breaking, says it is his "hobby," that he has practised it all his life, that he does not consider it at all derogatory to his profession, and that he certainly should not be deterred from carrying it on, having a good connection in the "line:" I remonstrated with him, but without effect. I hope through your "Record" to get abundant expressions of opinion, as it is just possible that coming from high authorities, they may be the means of preventing this wilful member from committing such a flagrant violation of professional ethics. I may add that the person referred to charges a fee for his services, although he stated on each occasion I had the pleasure (?) of seeing him mounted on his "hobby," that he was doing a good practice. I enclose my card, but of course, for the present at least, have no wish to publish names.

I am Sir, yours obediently, H. D.

A WORD FOR "THE RECORD."

Dear Sir,

It must be gratifying to many members of the profession to learn that they now have an opportunity of knowing early what is going on. I was somewhat surprised a few weeks since on reading some remarks, in a Dublin paper, concerning an Operation for Roaring. Strange to say no notice had been made in our Veterinary Journals. If an operation can be made successful for roaring, without the disagreable tube as a permanent aid, then it may be said that a great point has been achieved. The trial test could not be in better hands than it is. Considering the large number of qualified men now in practice it is to be hoped that there will be no want of correspondence. It appears to me that, if it were convenient to forward short papers upon interesting subjects they would be well received by provincial men. Articles which occupy several pages, are rather tiresome to wade through.

Faithfully yours, R. H. Dyer, V.S.

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